Of how long-standing was the aneurysm? The development is usually slow, though rapid growth is a recognized possibility. The endarteritis of the coronary vessels was probably a slowly progressive disease, and the degenerative changes in the heart muscle doubtless proceeded *pari passu* with it. Granting that aneurysms tend to fill themselves by clot formation and organization, it may be argued, from the thinness of the pouch, that the lesion was comparatively recent. Clot formation is, however, favored by stagnation, and hence would be most rapid in an aneurysm with a constricted orifice, which was not true of this case. All things considered, one is justified, I think, in selecting the attacks of angina pectoris in 1894 and 1895 as the approximate starting point rather than the condition diagnosed as pleurisy in September, 1899.

In view of the extensive and extreme disease of the coronary arteries, the vessels of Thebesius must have been the principal contributors to the nutrition of the myocardium for some time before death.

The case adds nothing to the diagnosis of cardiac aneurysm, the symptoms having been throughout those of chronic fibrous myocarditis.

ŒSOPHAGEAL NEUROSES.

By A. L. Benedict, A.M., M.D.,
OF BUFFALO, N. Y.

Neuroses in general are classified under three heads: motion, secretion, and sensation. As the œsophagus has no true glands and no secretion aside from that of mucus, secretory neuroses are out of the question, unless we accept the possibility of a mucous neurosis analogous to that of the colon. Personally, I deny absolutely the neurotic etiology of a flow of mucus from the colon, believing that the advocates of this theory have put the cart before the horse, and that the neurotic condition is the result of the chronic colitis (often including a typhlitis or scolecitis) or of an antecedent splanchnoptosis, or other cause. However, if one admits a mucous neurosis of the colon, he can easily find the same thing in the œsophagus, and it is surprising that this opportunity for fame has been neglected.

Sensory neuroses, in general, are either neuralgic or are due to ordinary physiological conveyance of more or less painful sensations, or are the local expression of various organic nervous diseases, such as neuritis, tabes, and many others. There is no appreciable diminution of nervous sensibility below the nearly zero normal to internal organs, so that we cannot classify sensory neuroses as exalted and depressed, as we can sensory and motor disorders. However, as a matter of convenience, we may recognize neuralgia, rheumatic and, theoretically, neuritic and tabetic pain in the œsophagus, as well as that due to organic lesion and the burning due to regurgitation of acrid gastric contents. It is absurd, however, to call such local pains neuroses. On the contrary, there would be a neurosis if such adequate causes of pain did not produce it. A more or less complete absence of œsophageal sensibility may occur in various paralyses and central nervous diseases.

We may therefore limit the discussion to motor neuroses. These may be classified as follows:

- 1. Depressed
  - Paresis (sluggishness).
  - Paralysis.
- 2. Exalted
  - Simple increase of peristalsis.
  - Spasm
    - Clonic
      - Direct.
      - Reversed.
    - Tonic.

Sluggishness, paralysis, and simple increase of peristalsis may be termed, after the analogy of gastric disorders, hypotony, atony, and hypertony, respectively. Or we may substitute -kinesis (with the accent on the second syllable, not rhyming with émesis) for -tony. Absolute atony or paralysis is exceedingly rare, if ever present, on account of the joint sympathetic and pneumogastric innervation of the œsophagus. Hypotony, or, as ordinarily termed, atony, is an exceedingly common condition. It may be determined by noting the delay of the œsophageal murmur after the rise of the thyroid cartilage, in drinking, and is usually associated with gastric hypotony and constipation due to intestinal hypotony. It is rather doubtful whether all these conditions should not be considered as essentially organic, on account of defective development of muscle, connective tissue and nerve fibre. At any rate, hypotony is liable to develop into dilatation, whether of œsophagus, stomach, or intestine.

Œsophageal hypertony is diagnosticated with some difficulty, or, rather, the modest clinician hesitates to adopt an arbitrary period for the passage of the bolus through the œsophagus and to use the term hypertony, if the period is accelerated by a few seconds. One must not carry the antithesis between hypotony and hypertony to the degree of assuming that œsophageal hypertony necessarily occurs in conjunction with rapid emptying of the stomach into the bowel, or through the œsophagus, or with diarrhœa. The first is more likely to be due to pyloric relaxation than to general gastric hypertony, and diarrhœa is very rarely a pure motor phenomenon, even after the ingestion of a drug.

Spasms of the œsophagus may, theoretically, be divided into those of circular, longitudinal, and both sets of muscle, but this classification is not warranted clinically. Clonic spasm, whether direct or reversed, occurs mainly in connection with similar spasms elsewhere, especially of the stomach during vomiting. Again, a spasm typically occurring tonically may be interrupted so as to merge into a clonic spasm.

Tonic spasm, including an apparently clonic spasm due to interruption, may be stationary in one segment of the œsophagus, or may apparently travel up and down, or may change from one location to another, on the recurrence of the spasm. There is, of course, no possibility of relative movement of a fixed spasm, as in the case of spasm of a segment of intestine.

Tonic spasm of the œsophagus usually assumes one of two forms: either a dysphagia analogous to that of organic stricture, and presenting the same signs on sounding, except that the spasm may be "tired" by steady pressure, when it will gradually or suddenly relax; or the spasm may take the form of a moving globus (hystericus?). In the former case the patient complains merely of difficulty in swallowing, more or less intermittent and variously described in subjective or objective terms. It is almost never sufficient to interfere materially with nourishment, although it may occur in persons, especially young women, who are already badly nourished. There is not usually any confusion of description with that of globus. Indeed, usually the location is fixed quite definitely by the patient and is verified by sounding, and the position does not change from one time to another. Some authorities have made very definite statements regarding the location of the spasm, but my own experience allows only the statement that it is most frequent opposite the larynx, where there is a mechanical reason for spasm, and close to the cardia, where more or less of a sphincteric action is possible. At both of these levels, too, there is a fixed point of resistance. It has frequently occurred to me, as doubtless to others, to surmise that there may be an organic cause for a definitely fixed spasm, occurring in a non-hysterical individual. It is practically impossible to demonstrate, but it is plausible to assume a minute traumatism, as from a fish-bone, seed, or some similar cause.

Occasionally tonic but more frequently clonic spasm is due to some well-defined reflex cause, at a greater or less distance. The most frequent of these are regurgitation of acid chyme through the cardia; lodgement of a foreign body in a tonsillar crypt; inflammatory or other lesion of the dorsum of the tongue, fauces, epiglottis, etc.

Patient No. 54, of 1896–7, presented a rather obstinate but clearly spastic stricture of the œsophagus, several centimetres above the cardia. Some months after its relief, which was accomplished by sounding, he died of cancer at the cardia, which had been free from obstruction at the time of the spasmodic stricture.

Patient No. 43, of 1898–9, had considerable dysphagia and ischochymia, due to reflex from small tumors at the cardia and pylorus, respectively. The tumors were seen at operation and were unable to produce mechanical obstruction at either site. The tumors were thought to be cancerous, but the patient recovered after the establishment of a jejunal fistula for a month, and she is still alive and was in excellent health when last seen.

I may digress for a moment to express the opinion that spasm of a muscular tube of the body usually indicates some real irritant, as a foreign body, calculus, painful lesion, as a small ulcer, or else that it is a reflex indication of genuine disease situated at a distance, but in the same tract. For instance, biliary spasm and jaundice may be due to scolecitis; appendicular or cæcal colic to gallstones in the biliary tract; intestinal spasm to scolecitis; gastric spasm to gallstones, intestinal worms, etc.

One of the most interesting hysterical spasms of the œsophagus that I have seen was in patient No. 67, of 1897–8, a young woman who had nursed her mother through a fatal case of cancer of the cardia. The girl simply duplicated her mother's symptoms, and there was a genuine resistance to the sound a little above the cardia. There were no other symptoms of hysteria.

Œsophageal spasm of the globus type presents many difficulties of explanation. I have seen it so seldom in ordinary hysterical cases (which do not often reach a specialist unless in nervous diseases), and so often in patients who were otherwise not in the least hysterical, that I hesitate to qualify it as globus hystericus. Is the globus purely a subjective sensation, or is there a real "lump in the throat," formed by muscular spasm and resembling that which forms at the base of a dog's penis during intercourse? When the patient describes the lump as rising or sinking gradually, is the motion purely subjective, or does the contracted area actually move? If stationary spasms are accurately located, is it not reasonable to suppose that the globus actually moves, as it seems to? Then, again, when a sober, middle-aged man of phlegmatic type describes a globus among his symptoms, why should we consider it any more hysterical than a gastric spasm causing ischochymia, or spastic constipation, or even biliary spasm?

As it had never been convenient for me to pass a sound during an attack of globus, I could not state whether a spasm was really present nor whether it really moved. Several of my friends, called by telephone, could not enlighten me. The text-books at hand did not afford any definite information. Dunglison mentions globus as a sensation. The late A. L. Loomis refers to it as the imagination of a lump rising from the epigastrium to the mouth. Frank Baker and G. L. Watson speak of it as a constriction of the muscles of the pharynx, the latter including the œsophagus. Ewald and Hemmeter omit all reference to it except as a name. G. R. Butler and James Tyson speak of it as a sensation. H. R. Hopkins informs me of his personal belief that the condition has never been scientifically studied.

One form of globus, which is quite different from an hysterical manifestation in the ordinary sense, occurs after prolonged sobbing, laughing, violent hawking to remove mucus, or even after deglutition of dry foods. This is especially likely to come on if the attempt is made to stop laughing or sobbing suddenly by swallowing or by forced inhibition. Even one or two attempts at swallowing may bring it on if the throat is already dry from dust, smoke, etc. This form of globus is almost or quite confined to the pharynx and may be succeeded by a distinct lameness.

The following table, originally published in the *Medical Fortnightly*, affords a general conspectus of the various reflexes in which the pharynx and œsophagus may be concerned more or less directly. It is unnecessary to enter into details.

Reflexes Mainly Due to the Pneumogastric Nerves.

The pneumogastrics are concerned in a number of reflex phenomena, whose function is especially to protect the respiratory and alimentary passages from injury. Such protective acts are, obviously, expulsive and depend mainly on the action of the diaphragm, whether to empty the respiratory or alimentary passages. It is convenient to consider with these protective, expulsive (and, therefore, expiratory) reflexes certain others that are mainly inspiratory. The normal ingestive processes of respiration and deglutition have already been considered.

	Expiratory reflexes.	Inspiratory reflexes.	
Primary protective	Vomiting	Swallowing	Respiratory.
Abortive vomiting	Retching		
	Gagging		
	Puking	Air-swallowing	
Abnormal, but of frequent occcurrence .	Belching		
	Water-brash		
	Rumination		
Laryngeal construction	Cough	Hiccough	Alimentary.
Nasal obstruction	Sneeze	Sniff	
Audible vibration of oropharyngeal cavity	Laugh	Sob	
Crying is laugh or sob plus lacrymation.			
Laryngeal obstruction prolonged . .	Strain		
Prolonged inspiration with general flexor spasm	....	Yawn	

Both inspiratory and expiratory—(single) sigh; (repeated) panting.

The various conditions included under the term aerophagia deserve our consideration. Generally speaking, aerophagia, or, rather, the subsequent expulsion of air, is construed as the formation of gas by fermentation in the stomach. Some have even gone so far as to consider it as gastric respiration, with elimination of CO_2, as in the case of the lungs. One look at a section of gastric mucosa is sufficient evidence that no appreciable quantity of gas can be formed in this way. I have also described, in *International Clinics*, a rare method of production of CO_2 without marked fermentation, due to the union of acid gastric contents and alkaline carbonates in the upper intestine, with relaxed pylorus, so as to allow expulsion upward.

Air-swallowing is an inevitable accompaniment of ordinary deglutition and is increased by rapid eating and by certain formations of the throat not well understood. Thus there is very frequently a moderate belching of air during or shortly after a meal.

Aerophagia, as a neurosis, means almost any gradation between air-swallowing in the literal sense and a hiccough. At the former extreme the patient simply has a trick of swallowing air and belching it up; at the latter, the œsophagus is relaxed and at the sudden stoppage of the entrance of air into the larynx, by the closure of the glottis, the chest, still expanding, draws a little air into the œsophagus. In typical aerophagia there is little to justify the derivation of the word, but the condition is an hysterically magnified hiccough.

Patients No. 47, of 1902–3, and No. 64, of the same year, illustrated this condition, the latter in an exaggerated degree. The former was really a sensible, middle-aged woman, who readily co-operated in treatment, which is necessarily partly an exercise of will power. The latter patient was an extremely neurotic woman aged thirty years. She had suffered with "belching of gas" for years and would have an attack whenever excited by any cause, even the arrival of visitors. She often had attacks on the street, and rarely failed to have one when she came to my office. Sometimes they would continue for an hour or more, but at the office they were always speedily terminated by some form of instrumentation. While it was not feasible to measure the air, it was shown, by collecting it in mouthfuls, to amount to at least 100 c.c., and by blocking the mouth and nose it was clearly shown to be drawn in immediately before it was belched out. This observation was also confirmed by auscultation. It is rather questionable whether the air enters the stomach in these cases or not. Probably there is an individual variation as well as a temporary one. This neurosis is disgustingly noisy and causes much embarrassment to the patient and her family. In this particular case the patient's nose was obstructed by a mass of polyps, and it was thought that this might have had a bearing on the etiology. Its removal has not, however, produced any relief of the neurosis after a year. It is, of course, useless to treat such patients with antiseptics, unless an indication also exists in the stomach and bowels. Nerve sedatives are of some value, but the principal reliance is to be placed on instrumentation to break up spasm (as, indeed, in most forms of œsophageal neurosis), and on obtaining the patient's intelligent co-operation.